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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/066,941	02/04/2002	Tse-Yu Yeh	5580-04401	4259

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EXAMINER

MEONSKE, TONIA L

ART UNIT PAPER NUMBER

2183

DATE MAILED: 08/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/066,941

Applicant(s)

YEH ET AL.

Examiner

Tonia L Meonske

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 26 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 4, 6-8, 11, 12, 18, 21, 23, 24, 26, 27, and 33 is/are rejected.
- 7) ☐ Claim(s) 2, 3, 5, 9, 10, 13-17, 19, 20, 22, 25 and 28-32 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5/9/03, 11/18/02.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Specification*

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 33 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In line 1, the limitation "representing" is indefinite. It is unclear exactly what "representing" means. The metes and bounds of the claims are unclear. Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 4, 6-8, 11, 12, 18, 21, 23, 24, 26, 27, and 33 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Talgam, Yoav, Shadow Scoreboard and Implementation, October 1998, Motorola, Inc., Technical Developments, volume 8, pages 43-44, hereinafter "Talgam".
6. Referring to claim 1, Talgam has taught an apparatus comprising:

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- a. a first scoreboard (Page 44, see "scoreboard");
  - b. a second scoreboard (Page 44, see "shadow S.B."); and a
  - c. control circuit coupled to the first scoreboard and the second scoreboard, wherein the control circuit is configured to update the first scoreboard to indicate that a write is pending for a first destination register of a first instruction in response to issuing the first instruction into a first pipeline (Page 43, second and third paragraphs), and wherein the control circuit is configured to update the second scoreboard to indicate that the write is pending for the first destination register in response to the first instruction passing a first stage of the pipeline (Page 43, fourth and fifth paragraphs, The scoreboard values are copied in the shadow scoreboard.), wherein replay is signaled at the first stage (page 43, fourth and fifth paragraphs, an exception is signaled), and wherein the control circuit, in response to a replay of a second instruction, is configured to copy a contents of the second scoreboard to the first scoreboard (pages 43-44, fourth and sixth paragraphs of the document).
7. Referring to claim 4, Talgam has taught the apparatus as recited in claim 1, as described above, and wherein a redirect due to a mispredicted branch instruction is also detected at the first stage, and wherein the control circuit, in response to the redirect, is configured to copy the contents of the second scoreboard to the first scoreboard (Pages 43-44, fourth through sixth paragraphs, A mispredicted branch is an exception.).

8. Referring to claim 6, Talgam has taught the apparatus as recited in claim 1, as described above, wherein the first scoreboard and the second scoreboard track pending writes to integer registers (Page 43, fourth paragraph, This is precisely how scoreboards work.).
9. Referring to claim 7, Talgam has taught the apparatus as recited in claim 6, as described above, and wherein the control circuit is configured to selectively inhibit issuance of a third instruction dependent on which of a plurality of pipelines to which the third instruction is to be issued if the first scoreboard indicates a write pending to one of the operands of the third instruction (Page 43, fourth paragraph, This is precisely how scoreboards work.).
10. Referring to claim 8, Talgam has taught the apparatus as recited in claim 7, as described above, and wherein, if the third instruction is to be issued to a load/store pipeline of the plurality of pipelines, the control circuit is configured to inhibit issuance of the third instruction if the first scoreboard indicates a write pending to one of the operands of the third instruction (Page 43, fourth paragraph, This is precisely how scoreboards work.).
11. Referring to claim 11, Talgam has taught the apparatus as recited in claim 6, and wherein the first instruction is a load instruction, and wherein the load instruction passes the first stage if the load instruction misses in a data cache (page 343-44, When a load misses in a data cache, or an exception occurs, the exception is serviced and then the instruction passes the first stage.).
12. Referring to claim 12, Talgam has taught the apparatus as recited in claim 1, as described above, and wherein the control circuit is configured to update the first scoreboard and the second scoreboard to indicate that the write is not pending to the first destination register

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at a first predetermined clock cycle prior to the first instruction writing the first destination register (Pages 43-44, When the scoreboard indicates that the instruction is finished executing, but not yet written to the destination register, the scoreboard indicates that the write is not pending because it's actually finished executing.).

13. Claims 18, 21, 23, 24, 26, 27, and 33 do not claim anything over claims 1, 4, 6, 7, 11, 12, and 1, respectively, and are therefore rejected for the same reasons as set forth in claims 1, 4, 6, 7, 11, 12, and 1.

***Allowable Subject Matter***

14. Claims 2, 3, 5, 9, 10, 13-17, 19, 20, 22, 25, and 28-32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

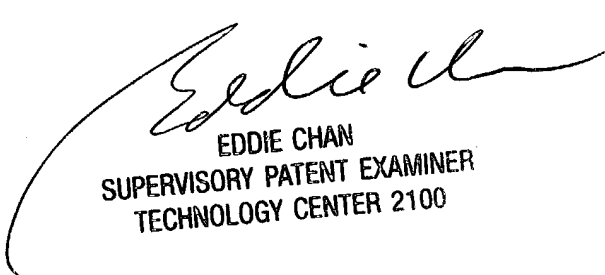
***Conclusion***

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tonia L Meonske whose telephone number is (703) 305-3993. The examiner can normally be reached on Monday-Friday, 8-4:30.
16. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie P Chan can be reached on (703) 305-9712. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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17. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

tlm



EDDIE CHAN  
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